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### **GIDEP E4-P-09-01 High Resistance Failures on Maxwell EEPROM MCM**

As noted in the July bulletin, a GIDEP was issued as a result of EEPROM failures at JPL. Contact: Doug Sheldon 818-393-5113.

### **GIDEP G2-P-09-02 Memory, Digital CMOS 128Kx8 bit EEPROM**

This GIDEP Advisory applies to Atmel's 5962-3826707MZX, or AT28C010-12FM/883. Atmel will revise their datasheet to further define some timing specifications. Contact: Ramin Roosta 818-354-7385.

### **GIDEP FV5-P-09-03 Hybrid Package Ceramic Seal Design**

This GIDEP Advisory applies to International Rectifier's M3G series hybrids. All non-conforming products are contained. Contact: Gary Bivins 818-393-1888.

### **Maxwell Single Board Computers**

Goddard Space Flight Center has had a problem with Maxwell SBC relating to the substrate used on these very complex printed wiring boards. The SBCs tend to work best in applications with no appreciable thermal cycling. Contact: Shri Agarwal 818-354-5598.

### **Suspect Counterfeit Parts – JPL, non-flight procurement**

Suspect counterfeit parts were recently found in JPL's radiation test lab. Procured from a un-franchised distributor using a credit card, they were bought under a DSCC QPL part number and used for scientific study purposes only. The visual indicators were solder on the leads and a surface finish shinier than an authentic part. A GIDEP alert may be issued. Contact: Kathy Whittington 818-394-8749.

### **Water Soluble Flux**

Goddard Space Flight Center assembled a team to address the impact of using water soluble flux (WSF) to manufacture printed-wiring assemblies for flight projects. Some WSF types leave undesirable residues that cause corrosion, and may create solder joint voids leading to early failures. Contact: Phil Zulueta 818-354-1566.

### **National Fab Move**

National Semiconductor announced plans to consolidate its wafer fabrication facilities. They will close their wafer fab plant in Arlington, Texas by May 2010. Most of the production volume will be transferred to plants in South Portland, Maine and Greenock, Scotland. Most transferred products are not yet qualified at the receiving sites. The Hi-Rel qualification approach will be in two stages. Completion is expected in mid-2010. Both facilities have been certified to MIL-PRF-38535 for over 10 years. The PCN may be found at [http://www.national.com/analog/milaero\\_products](http://www.national.com/analog/milaero_products).

Under the **Design** tab click on **Process Change Notifications**. Contact: Shri Agarwal 818-354-5598.

### **Anomalous TID Failures of Radiation Tolerant FPGAs**

Recent TID lot testing of Actel RTSX72 FPGAs demonstrated a reduction in the assurance level. These devices, while not RHA R-level parts, are expected to survive "up to 100 krad(Si)" TID exposure. Instead, the parts demonstrated functional failures at 65 krad(Si) for two tested wafer lots. The testing was done according to MIL-STD-883 Method 1019 with a dose rate of 25 rad(Si)/second. Each of the two lots was tested on a different VSLI tester with identical test vectors, and the failure mode and parametric degradation were the same

for both lots. The supply current, as well as the tri-state leakage current exceed specifications close to 65 krad (Si). Failure of the charge pump circuitry is suspected for the functional failure due to an inability to supply the current requirements of the read-out circuitry. The loaded test vector for both tests was a redundant counter which is not a worst case test configuration. Testing with test vector sets reflective of typical real world programming is under way. Contact: Leif Scheick 818-354-3272.

### Single Die Hybrids

It was reported on a recent NEPAG telecon some hybrid manufacturers are building space level hybrid products with just one die (a.k.a. chip or element). By definition, the hybrids should contain two or more elements. Space level hybrids are built to MIL-PRF-38534, Class K requirements. However, if the same die were offered as a space product by a microcircuit supplier, it would have to meet the requirements of MIL-PRF-38535, Class V, that are much more stringent than those for space hybrids. Contact: Shri Agarwal 818-354-5598.

### Recent DSCC Audits supported for NASA by JPL Specialists

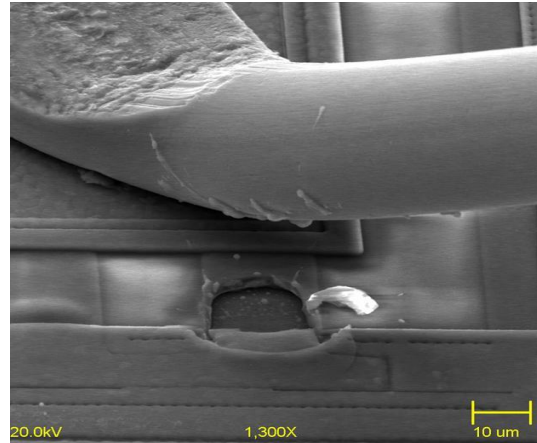
- Analog Devices
- Actel Corporation
- Spectrum Control Inc.
- E2V QP Semi Corp.

### Upcoming Meetings:

Military and Aerospace Programmable Logic Devices Aug. 31-Sept. 3  
[http://nepp.nasa.gov/mapld\\_2009](http://nepp.nasa.gov/mapld_2009)

Diminishing Manufacturing Sources and Material Shortages, Sept. 21-24  
<http://www.dmsms2009.com>

### A Look at Failure: Electrical Overstress



*Damage to an integrated circuit **above** is due to electrical overstress. An explosion threw melted aluminum debris on to the lead.*

### Contacts

#### NEPAG

<http://atpo.jpl.nasa.gov/nepag/index.html>

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### Previous Issues:

<http://atpo/nepag/index.html>